

CLAIMS:

1. An organic light emitting diode (OLED) comprising a substrate bearing a light emitting layer between an electrically conducting anode and an electrically conducting cathode, the diode being configured for light emission through said cathode, the cathode being transmissive at a light emission wavelength of the diode, and wherein said cathode incorporates an optical interference structure configured to enhance light transmission through said cathode at said emission wavelength.
2. An OLED as claimed in claim 1 wherein said cathode comprises an optical interference layer lying between first and third layers of different refractive indices such that reflections from front and back surfaces of said optical interference layer interfere to enhance light transmission through said cathode at said emission wavelength.
3. An OLED as claimed in claim 2 wherein said first layer comprises an electron injecting layer for injecting electrons into said light emitting layer, and wherein said third layer comprises an electrically conducting layer.
4. An OLED as claimed in claim 2 or 3 wherein said optical interference layer has an optical thickness of between a third of said emission wavelength and a fifth of said emission wavelength.
5. An OLED as claimed in claim 4 wherein said optical interference layer has an optical thickness of substantially a quarter of said emission wavelength.
6. An OLED as claimed in any preceding claim wherein said emission wavelength is substantially equal to a peak or centre emission wavelength of said light emitting layer.
7. An OLED as claimed in any one of claims 2 to 6 wherein said third layer comprises a metal layer.

8. An OLED as claimed in any one of claims 2 to 7 wherein said optical interference layer comprises a wide bandgap semiconductor, preferably zinc selenide or gallium nitride.
9. An OLED as claimed in any one of claims 2 to 7 wherein said optical interference layer comprises a transparent conductor, preferably indium tin oxide or indium zinc oxide.
10. An OLED as claimed in any one of claims 2 to 7 wherein said optical interference layer comprises a dielectric material.
11. An OLED as claimed in any one of claims 2 to 10 wherein said electron injecting layer includes a layer of a metal.
12. A display device including an OLED as claimed in any preceding claim.
13. An OLED-based display device including one or more OLEDs each comprising a layer of OLED material sandwiched between anode and cathode electrode layers, said OLED material electroluminescing when a current is passed between said anode and cathode electrode layers, a first of said electrode layers being at least partially transmissive at a peak wavelength of said electroluminescence and being closer to a display surface of said device than the second of said electrode layers whereby the device is configured for electroluminescent display through said first electrode layer, wherein said first electrode layer comprises a spacer layer sandwiched between a coupling layer for connecting to said OLED material and a third, substantially electrically conductive layer, and wherein said spacer layer has a thickness of approximately an odd integral number of quarter wavelengths at said peak electroluminescence wavelength such that transmission through said first electrode layer at said peak electroluminescence wavelength is substantially maximised.
14. An OLED-based display device as claimed in claim 13 wherein said first electrode layer is said cathode electrode layer.